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ABSTRACT

The Chapter 720 bilingual program located at Louis D. Brandeis High School in New York City, seeks to provide specialized Spanish and English instruction in mathematics and language development for 250 Spanish speaking students. This report briefly describes the program's goals and objectives, its organization, and instructional and noninstructional services it provides. It also presents evaluation findings from 1981-82, the program's third year of operation. The following results are given: (1) program students made statistically significant gains in Spanish language reading scores from pre to post test, as measured by the "Prueba de Lectura"; (2) program students showed statistically significant gains in bilingual mathematics, as measured by the Metropolitan Achievement Test; (3) in content-area subjects, program students' passing rates were 57 percent for mathematics, 70 percent for science, 56 to 62 percent for social studies, and 67 to 76 percent for native language arts. In addition, participants were found to have mastered an average of 1.7 objectives per month of English instruction. Finally, the attendance rates of program students was significantly greater than that of mainstream students. (GC)

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ED234127

O.E.E. Evaluation Report

April, 1983

LOUIS D. BRANDEIS HIGH SCHOOL

NEW YORK STATE CHAPTER 720

BILINGUAL PROGRAM

1981-1982

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Director:
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LOUIS D. BRANDEIS HIGH SCHOOL
NEW YORK STATE CHAPTER 720 BILINGUAL PROGRAM

Location:	145 West 84th Street New York, New York 10024
Year of Operation:	1981-1982, third year of funding
Target Language:	Spanish
Number of Participants:	Approximately 250 students
Project Director:	Ms. Emilia Cardona
Principal:	Mr. Murray Cohn

INTRODUCTION

The Chapter 720 Bilingual Program at Louis D. Brandeis High School completed its third year of funding in June, 1982. In response to the competency requirements mandated by the State Education Department, Chapter 720 funds were used to provide specialized services for mathematics and language development programs in both English and Spanish. The Chapter 720 Bilingual Program was coordinated within the general bilingual program at Brandeis which was supported by a combination of tax-levy, Title I, and Title VII funds.

I. CONTEXT

Located on Manhattan's upper west side, Brandeis High School stands on 84th Street between Amsterdam and Columbus Avenues. The school's immediate vicinity has long been, and remains, a low-income area populated largely by Hispanics. The surrounding area has increasingly become a high-rent, middle-class, predominantly white area. The process of upgrading residential and commercial property ("gentrification") continues; the contrast between the low-income neighborhoods of Brandeis' large attendance area and the school's affluent surroundings has become increasingly stark. Many students commute to Brandeis from as far as 155th Street. (A more detailed description of the school's setting and its attendance area is available in the Office of Educational Evaluation's report on the bilingual project at Brandeis High School for 1979-80.)

Twenty years after its construction, the school building continues to make a positive impression on the visitor. It is clean, well lighted, and well maintained. The atmosphere in the building is pleasant, orderly, and conducive to the high standards of academic work and social conduct which Brandeis maintains. Bilingual offices occupy part of the third floor in this four-story brick structure. The program is housed in a large busy room with five desks. Attractive posters and a bulletin board offering information and schedules are strategically placed near the entrance to the office, according to the bilingual program coordinator, "to place the responsibility back on students" for keeping track of their own activities. Students apparently feel free to come to the office, where they have easy access to the project director and coordinator. The privilege is appreciated and seldom abused.

II. STUDENT CHARACTERISTICS

All students served in the Chapter 720 program are Spanish-speaking and come from several different countries. As can be seen in Table 1, the majority of students were born in the Dominican Republic. Only three percent of the students were born in the United States.

Problems related to housing, transportation, and health often affect low-income communities. Staff members stated that students appear to have few problems in terms of housing, and transporation difficulties are solved by means of student passes. Health problems, however, seem to be more serious. Students have been absent for medical reasons on the average of twice a month. All have been issued clinic cards, but the staff has as yet been unable to determine whether medical absences are due to students' poor health histories, their desire to take advantage of previously unavailable medical care, or to family responsibilities, such as interpreting for parents or relatives. With the exception of two students who were hospitalized, medical absences have not caused students' work to suffer significantly.

Table 2 presents the number of program students by age and grade level. Approximately one-half of the students are overage for their grade. The largest percentage of overage students is found in grade 9. The data also reveal that most program students are 16 years of age.

Because there may be selective personal and environmental pressures on students in urban communities, the composition of the student body may vary from school to school and grade to grade within a school. Because the overwhelming majority of program students are

immigrants, their educational histories vary considerably. Many may have suffered interrupted schooling, or because of a lack of educational opportunities in their countries of origin, have received fewer years of education than their grade level would indicate. Table 3 presents the distribution of bilingual students by grade and sex. There are slightly more female than male students in the program. As can be seen in the table, females outnumber males in grades 10 and 11. The majority of program students are ninth graders.

Data from 76 students who left the program revealed that one-third were transferred out of the bilingual program and another one-third were discharged for unknown reasons (see Table 4). Fifteen of the students left the program because of truancy.

TABLE 1

Number and Percentages of Program Students

by Country of Birth

Language: Spanish

Country of Birth	Number	Percent
Puerto Rico	24	9
Dominican Republic	164	63
Cuba	2	1
Mexico	2	1
Honduras	3	1
Guatemala	6	2
Costa Rica	1	<1
El Salvador	15	6
Colombia	9	3
Ecuador	22	8
Peru	1	<1
Chile	1	<1
Bolivia	1	<1
Venezuela	2	1
U.S.	9	3
TOTAL	262	100

- Sixty-three percent of the students were born in the Dominican Republic. The next highest proportion, 9 percent, was born in Puerto Rico.

- Only three percent of the students are U.S.-born.

TABLE 2

Number of Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Total
14	21	3	0	24
15	28	23	0	51
16	58	44	3	105
17	39	17	4	60
18	6	4	4	14
19	2	2	1	5
20	3	1	1	5
21	0	1	0	1
Total	157	95	13	265

Note: Shaded boxes indicate expected age range.

Overage Students				
Number	108	25	6	139
Percent	69	26	46	52

- Fifty-two percent of the students are overage for their grade. The highest percentage of overage students is in grade 9, followed by grade 11.

- Most program students are 16 years of age. These are mostly in grade 9.

TABLE 3

Number and Percentages of Students by Sex and Grade

Grade	Male N	Percent of Grade	Female N	Percent of Grade	Total N	Column Total: Percent of All Students
9	83	53	74	47	157	59
10	42	43	56	57	98	37
11	5	39	8	62	13	5
Total	130	49	138	51	268	101

- There are slightly more female than male students in grades 10 and 11, and in the program as a whole.
- The highest percentage of students is in grade 9, more than half of the total number served. Enrollment decreases as grade increases.

TABLE 4

Number of Students Leaving the Program

Reason For Leaving	Grade 9	Grade 10	Grade 11	Total
Discharged/ transferred to altern. program	1	2	1	4
Transferred to another school	1			1
Passed H.S. Equivalency	1			1
Returned to native country	4			4
Discharged (Job)		1		1
Discharged (Reason Unknown)	14	9	2	25
Truant	13	2		15
Out of Remedial Program (Fall)	12	10	3	25
Total	46	24	6	76

.Seventy-six students or approximately 25 percent of those served, left the program for various reasons.

.Of those who left, 70 were ninth and tenth graders.

.Most students who leave the program complete the sequence, are transferred out, or are discharged for unknown reasons. The next highest percentage of students are reported truant.

.The highest percentage of truant students is in grade 9.

III. PROGRAM DESCRIPTION

GOALS AND OBJECTIVES

The Chapter 720 bilingual program seeks to provide specialized instructional service in mathematics and language development both in Spanish and English for 200 Spanish-speaking students selected on the basis of test scores (including placement tests, mathematics skills, scores on the Prueba de Lectura, and mathematics achievement tests) and teacher recommendations. Specifically, the program pursued the following goals for 1981-82:

1. Spanish Language Arts (Reading) -- at the end of the instructional program, the student population will show statistically significant gains at the .05 level as measured by the Prueba de Lectura;

2. Mathematics -- at the end of the instructional program, the student population will show statistically significant gains at the .05 level as measured by the Metropolitan Achievement Test, Form F (Spanish).

ORGANIZATION

The Chapter 720 program functions within the overall bilingual program at Brandeis; this program is part of the department of foreign languages and bilingual education, chaired by an assistant principal. The assistant principal (in charge of the bilingual program) is responsible for the supervision of instruction, coordination of instructional activities, and the evaluation of all teachers and educational assistants in the general bilingual program and in the Chapter 720 program.

The project director, who reports to the assistant principal, has ultimate responsibility for program implementation. Her duties

include disseminating information about the Chapter 720 program to the staff and to the parents of eligible Chapter 720 students; providing program-sponsored training activities to the Chapter 720 staff; encouraging Chapter 720 staff participation in advanced education programs; conducting monthly staff conferences regarding the progress of the Chapter 720 program; encouraging parent participation in the Bilingual Advisory Committee, P.T.A. meetings, etc.; conducting pre-classroom service workshops for staff to clarify the intent of the Chapter 720 program; and other similar activities. She also counsels program students, offering encouragement and motivation. Additionally, she has the responsibility for budgetary and other administrative tasks.

Three full-time staff members are funded by Chapter 720 to implement the program: one bilingual mathematics teacher and two paraprofessionals. (During the first two years of the program, there were sufficient funds to support three paraprofessional positions. However, due to the required 20 percent reduction in the budget, the third paraprofessional could not be funded for the full school year of 1981-82. Therefore, the position existed only for the fall term.) The Spanish language arts teacher was totally supported with tax-levy funds. The Chapter 720 program had access to, and made use of, the services of the bilingual secretary, who performed clerical tasks for the bilingual program as a whole.

Chapter 720 students also receive services from supportive personnel in the general bilingual program. This includes two bilingual deans whose duties include disciplining students, counseling, and handling parental visits. Student orientation regarding programs and

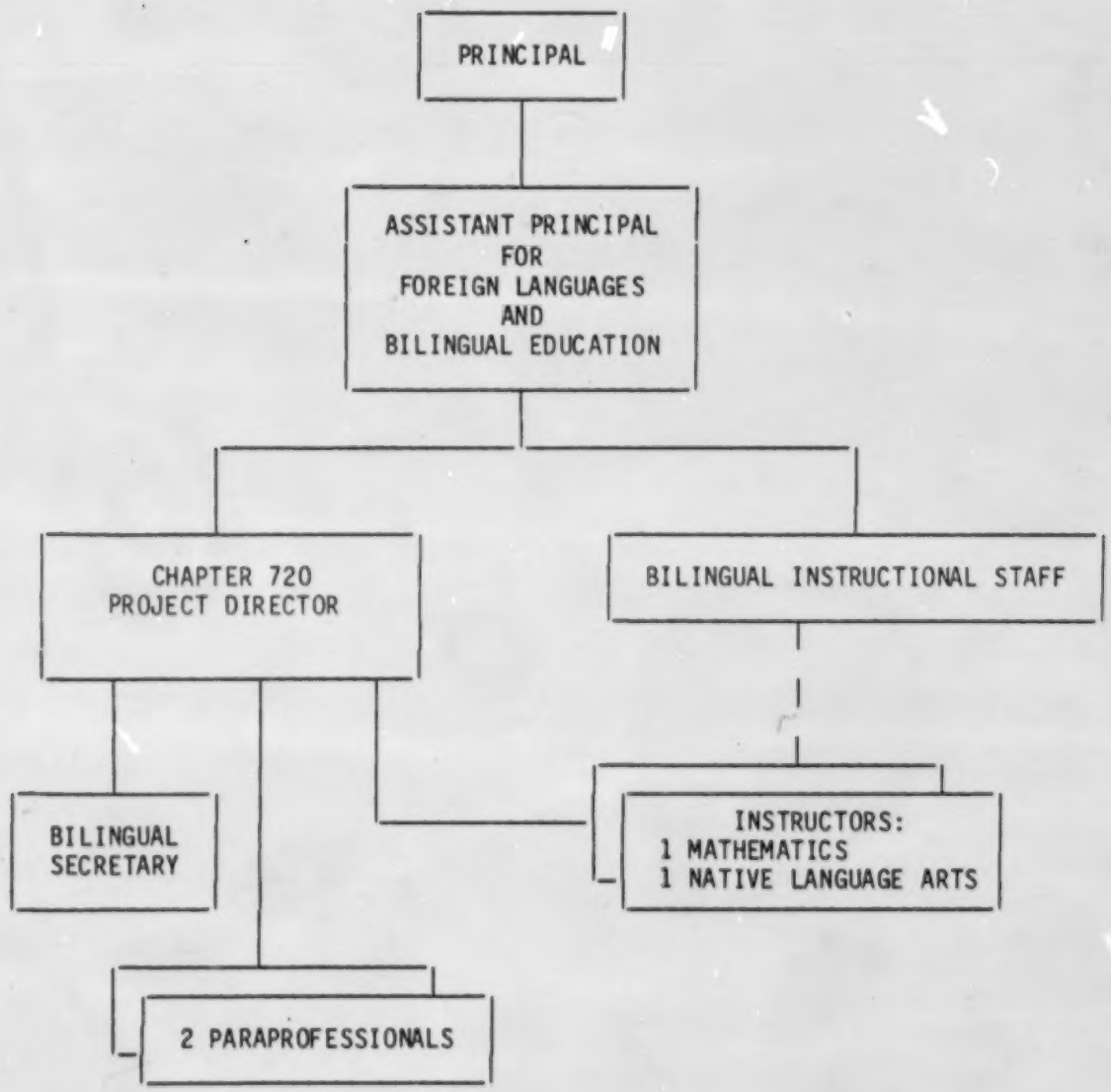
requirements for graduation is provided by five bilingual grade advisors. One bilingual head grade advisor (guidance) is responsible for new student admission interviews and procedures, programming, counseling students with emotional problems, making referrals to outside agencies, feeder school articulation meetings, and school assemblies. Bilingual teachers are assisted by a bilingual curriculum coordinator in the selection of instructional materials, and in the development and revision of courses of study. A Title I coordinator is provided to pre- and post-test all students with the Criterion Referenced English Syntax Test, to assist in data collection, to conduct workshops for paraprofessionals, and to assist E.S.L. teachers in the selection of instructional materials, planning lessons, and procedures for keeping records.

The principal's commitment to the Chapter 720 program has been demonstrated in numerous ways, including the number of personnel assigned to the program and his provision to assume the 20 percent reduction of state funds during the third year of the program.

An organizational chart and tables indicating funding sources for the Chapter 720 program staff and other bilingual staff members, follow.

FIGURE 1

PROGRAM STAFF ORGANIZATION



——————— Supervisory Relationship

– – – – – – – – – – Collaborative Relationship

TABLE 5

Funding of Bilingual Instructional Components at Brandeis

	Funding Source(s)	Number of Personnel: Teachers	Paras
E.S.L.	Title I PSEN Tax Levy	6 2 9	5 1 0
Reading (English)	N/A		
Native Language	720 Tax Levy	 4	1
Math	720 Tax Levy	1 4	1 0
Social Studies	Tax Levy	5	0
Science	Tax Levy	4	0

TABLE 6

Funding of the Non-Instructional Components

	Funding Source(s)	Personnel
Administration	Title VII	Project Director
Supportive Services/ Parental Involvement	Title VII	College Advisor

IV. INSTRUCTIONAL COMPONENT

OVERVIEW

The overall bilingual program at Brandeis offers an extensive array of English as a second language (E.S.L.), native language, and content-area courses taught in Spanish. Courses in social studies, science, and mathematics are designated A (academic) or G (general). Chapter 720 program students take bilingual program courses, and are specifically assigned to mathematics and language development courses. Their programs also include mandated courses and electives in the mainstream.

It must be emphasized that in terms of classroom instruction, the Chapter 720 program is supplementary: it serves as an adjunct to the regular program of bilingual instruction at Brandeis, and should not be understood as a complete course of secondary school instruction.

INSTRUCTIONAL OFFERINGS

The department of foreign languages and bilingual education offers courses in E.S.L., native language, and content-area courses in mathematics, science, and social studies. The Chapter 720 students participate in these classes with other bilingual program students.

English as a Second Language

Bilingual students were offered the following E.S.L. courses:

Subject	Periods per week
E.S.L. - beginning level I	10
E.S.L. - beginning level II	10
E.S.L. - intermediate level I	10
E.S.L. - intermediate level II	10
E.S.L. - advanced level I - Academic	10

Subject	Periods per week
E.S.L. - advanced level I - General	10
Pre-transitional course	10
E.S.L. - advanced level II - Academic	5
E.S.L. - advanced level II - General	5
English reading, beginning level I	5
English reading, beginning level II	5
English reading, intermediate level I	5
English reading, intermediate level II	5

Native Language Instruction

Spanish language courses are offered at several levels (Spanish 1s through 8s) and classes meet five days a week for 37 minutes per day. Students programmed for native language arts receive an additional 37 minutes for a total of 74 minutes daily. The classes are conducted entirely in Spanish and the teacher is assisted by a Spanish bilingual paraprofessional 100 percent of the time. The materials for instruction include programmed reading materials (Barnell Loft Individualized Spanish Reading Kits) and teacher-prepared individualized worksheets.

Chapter 720 Mathematics

Mathematics classes meet five days a week for 37 minutes per day. The classes are conducted entirely in Spanish and the teacher is assisted by a paraprofessional 100 percent of the time. The materials used for instruction include teacher-prepared worksheets, flash cards, charts, and textbooks.

Content-Area Instruction

Content-area courses were taught in Spanish. On the basis of ability and past performance, students were assigned to academic-track or general-track courses in most subjects.

The following courses were offered in 1981-82:

American history, 1	A and G
Economics	A and G
World geography	--
World history, 1 and 2	A and G
General science (2-course sequence)	A and G (second semester only)
Biology 1 and 2	A and G
Remedial math (4-course sequence)	--
Algebra (3-course sequence)	--

The evaluator visited two content-area courses which Chapter 720 program students attended along with students from the general bilingual program. A bilingual world history class attended by 24 students out of the 31 enrolled, was conducted by bilingual social studies teacher with no paraprofessional. This classroom was extremely well lighted, bright, and orderly. The walls were decorated with photographs from a variety of countries, and samples of students' work were displayed on a bulletin board. Chalkboards covered two walls of the room; there were windows on a third, and a row of lockers on the fourth.

The lesson, which focused on imperialism in the modern world, was conducted exclusively in Spanish. The teacher dictated definitions of historical terms (including punctuation), and waited while students took down her exact words. A quiz on imperialism and other topics was announced for the following day. Students were respectful and well disciplined, and at one point the teacher interrupted the class to ask a student to dispose of her chewing gum.

An algebra class was attended by 18 out of 20 registered students. An unusually heavy snow had fallen that day, and half of the faculty was out, but this class had only two absentees. It was held in

a very pleasant, well lighted classroom, with maps, photographs, and students' work decorating the walls. Two chalkboards, two bulletin boards, and lockers lined the walls.

The focus of the lesson was on word problems and fractions; it was conducted entirely in Spanish. The instructor distributed thirteen word problems, four of which were to be solved during the class period. The instructor elicited the appropriate equation for each problem from the students, encouraging them to formulate independent approaches to each problem.

V. NON-INSTRUCTIONAL SERVICES

GUIDANCE

Program students are offered the services of the school's guidance department and grade advisors. As previously mentioned, two bilingual deans provide discipline, counseling, and handle parental visits. Five bilingual grade advisors oversee student orientation regarding programs and fulfillment of diploma requirements. Students are helped with academic or personal problems, and are encouraged to pursue, rather than avoid, success.

Students receive college advisement from the college advisor beginning in the tenth grade and near the end of the eleventh grade they begin to visit and apply to colleges.

PARENTAL INVOLVEMENT

An advisory committee, consisting of at least four parents of the Chapter 720 program students, one Chapter 720 student, the Chapter 720 mathematics teacher, and the coordinator, meets periodically regarding the formulation and implementation of program policy. The committee members also function as a liaison with the mainstream Parent/Teacher Association, participating in schoolwide activities such as Open School Week, Pan American Day, special holidays, and attendance at special ceremonies. Together, the community and the mainstream P.T.A. ensure that all internal school communications are published bilingually.

Despite the generally low participation in school affairs by parents of high school students (both due to economic factors and the lessening need for parental involvement with older school children), the

bilingual program parents display an unusually high degree of involvement. This may be due to the program staff's consistent efforts since 1980 to involve parents in the policy-making process. An evaluator attended a college information workshop which was attended by 20 parents and five students. It was an informative session, and the parents' enthusiasm testified to the program's high level of parental involvement. Some of these same parents attend the evening college, continuing education, or E.S.L. courses offered at Brandeis.

VI. FINDINGS

ASSESSMENT PROCEDURES, INSTRUMENTS, AND FINDINGS

The following section presents the assessment instruments and procedures, and the results of the testing to evaluate student achievement in 1981-82.

Although the evaluation procedures determined by the proposal only specified the assessment of students in Spanish language arts based on their performance on the Prueba de Lectura: Level 3 and their performance in bilingual mathematics as measured by the Metropolitan Achievement Test: Form F, the program assessed students' achievement in other areas as well. The following are the areas assessed and the instruments used:

Spanish language arts -- Prueba de Lectura: Level 3;

Mathematics performance -- Metropolitan Achievement Test: Form F;

English as a second language -- CREST (Criterion Referenced English Syntax Text, Levels I, II, III);

Mathematics performance -- Teacher-made tests;

Science performance -- Teacher-made tests;

Social studies performance -- Teacher-made tests;

Native language (Spanish) performance -- Teacher-made tests;

Attendance -- School and program records.

The following analyses were performed: On pre/post standardized and criterion-referenced tests of achievement, statistical and educational significance are reported (see Tables 7 and 8). Statistical significance was determined through the application of the correlated t-test model.

This statistical analysis demonstrates whether the difference between pre-test and post-test mean scores is larger than would be expected by chance variation alone; i.e. is statistically significant.

This analysis does not represent an estimate of how students would have performed in the absence of the program. No such estimate could be made because of the inapplicability of test norms for this population, and the unavailability of an appropriate comparison group.

Educational significance was determined for each grade level by calculating an "effect size" based on observed summary statistics using the procedure recommended by Cohen*. An effect size for the correlated t-test model is an estimate of the difference between pre-test and post-test means expressed in standard deviation units freed of the influence of sample size. It became desirable to establish such an estimate because substantial differences that do exist frequently fail to reach statistical significance if the number of observations for each unit of statistical analysis is small. Similarly, statistically significant differences often are not educationally meaningful.

Thus, statistical and educational significance permit a more meaningful appraisal of project outcomes. As a rule of thumb, the following effect size indices are recommended by Cohen as guides to interpreting educational significance (ES):

a difference of 1/5 = .20 = low ES

a difference of 1/2 = .50 = moderate ES

a difference of 4/5 = .80 = high ES

*Jacob Cohen. Statistical Power Analysis for the Behavioral Sciences (Revised Edition). New York: Academic Press, 1977 Chapter 2.

As Table 7 reveals, program students made statistically and educationally significant gains from pre-test to post-test on the Prueba de Lectura. Similarly, statistically and educationally significant improvements were made in mathematics achievement across all grade levels (see Table 8).

The preceding analyses were conducted to address the program's evaluation objectives. Data were also collected and analyzed in other areas. For example, based on teacher-made examinations across a variety of courses, students were tested in their mastery of mathematics, social studies, science, and native language and the results are reported in Tables 9 and 10. These tables contain the numbers of students reported as taking the relevant courses, the number reported to have passed, and the percent passing, for fall and for spring courses separately.

The Criterion Referenced English Syntax Test (CREST) was administered to program students during the fall and spring semesters. This instrument, used to measure growth in English language, tests mastery of specific syntactic skills at three levels. Material at the beginning and intermediate levels of the CREST is broken down into 25 objectives per level, such as present-tense forms of the verb "to be" (level I), or possessive adjectives and pronouns (Level II). Material at the advanced level (Level III) is organized into 15 objectives, such as reflexive pronouns. At each level, students are asked to complete four items for each objective. An item consists of a sentence frame for which the student must supply a word or phrase chosen from four possibilities. Mastery of a skill objective is determined by a student's ability to answer at least three out of four items correctly.

This report provides information on the average number of objectives mastered, and the average number of objectives mastered per month of treatment, by students who received Title I E.S.L. instruction in fall and spring semesters (Tables 11 and 12). The tables are broken down by grade and test level.

Finally, attendance rates for program participants were compared to the attendance rate for mainstream students. Table 13 contains the average rate for each group, the percent difference, value of the z statistic, and its level of statistical significance.

TABLE 7

Native Language Reading Achievement

Significance of Mean Total Raw Score Differences Between Initial and Final Test Scores in Native Language Reading Achievement of Students with Full Instructional Treatment on the Prueba de Lectura, Total Reading, Forms C and D, Test Level 3 by Grade

		Pre-Test		Post-Test						
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Corr. Pre/post	T-test	Level of Significance	Educational Significance
9	81	51.1	21.6	58.2	20.1	7.1	.87	6.0	.01	.79
10	60	54.1	17.3	59.2	17.5	5.1	.74	3.1	.01	.54
11	4	57.8	15.4	59.8	10.7	2.0	.80	0.4	NS	.34
Total	145	52.5	19.7	58.6	18.8	6.1	.82	6.4	.01	.67

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- Students from grades 9 and 10 made statistically significant gains from pre-test to post-test. The gains of ninth-grade students were of high educational significance while those of the tenth graders were of moderate educational significance.

- The program's objective, that students' post-test scores will be significantly greater than their pre-test scores at the .05 level of significance, was met for program students as a whole.

TABLE 8

Mathematics Achievement

Significance of Mean Total Raw Score Differences Between Initial and Final Test Scores in Mathematics Achievement of Spanish-Speaking Students with Full Instructional Treatment on the Metropolitan Achievement Test, Form F, by Grade

		Pre-Test		Post-Test						
Grade	N	Mean	Standard Deviation	Mean	Standard Deviation	Mean Difference	Corr. Pre/post	T-test	Level of Significance	Educational Significance
9	82	10.0	4.6	14.2	4.8	4.2	.81	13.0	.01	1.17
10	41	11.5	5.4	15.1	5.8	3.6	.91	9.5	.01	1.64
11	3	16.7	8.5	18.7	9.5	3.0	1.00	5.2	.04	1.37
TOTAL	126	10.6	5.0	14.6	5.2	4.0	.86	16.3	.01	1.17

.Students at all three grade levels achieved post-test scores that were higher than their pre-test scores. These improvements were all statistically significant at the .05 level as well as being highly educationally significant.

.The program's objective, that students will show statistically significant gains from pre- to post-test at the .05 level, was met.

TABLE 9

Number and Percent of Spanish-Speaking Students Passing

Teacher-Made Examinations in Content-Area Subjects

by Grade and Semester

		FALL			SPRING			TOTAL	
Subject	Grade	N	Number Passing	Percent Passing	N	Number Passing	Percent Passing	N	Percent Passing
Math	9	112	55	49.1	104	51	49.0	216	49.0
	10	78	49	62.8	64	46	71.9	142	67.0
	11	10	7	70.0	7	4	57.1	17	65.0
	Totals	200	111	56.0	175	101	58.0	375	57.0
Science	9	75	56	74.7	64	42	65.6	139	71.0
	10	42	26	61.9	39	30	76.9	81	69.0
	11	6	4	66.7	2	2	100.0	8	75.0
	Totals	123	86	70.0	105	74	70.0	228	70.0
Social Studies	9	53	29	54.7	73	43	58.9	126	57.0
	10	36	22	61.1	49	35	71.4	85	67.0
	11	7	3	42.9	5	1	20.0	12	33.0
	Totals	96	54	56.0	127	79	62.0	223	60.0

*The overall passing rate of Spanish-speaking students in mathematics courses was 56 percent in the fall and 58 percent in the spring.

*The overall passing rate of Spanish-speaking students in science courses remained stable at 70 percent for both the fall and the spring.

*The overall passing rate of Spanish-speaking students in social studies courses was 56 percent in the fall and 62 percent in the spring.

TABLE 10

Number of Program Students Attending Courses and Percent Passing Teacher-Made Examinations in Native Language Arts (Spanish)

Course	Grade 9		Grade 10		Grade 11		Total	
	N	% Passing	N	% Passing	N	% Passing	N	% Passing
Native Language Arts (Fall)	107	69.2	73	63.0	6	83.3	186	67.2
Native Language Arts (Spring)	74	77.0	43	79.1	6	50.0	123	76.0

•The overall passing rate for Spanish-speaking students in native language arts was 67 percent in the fall and 76 percent in the spring.

TABLE 11

Performance of Students Tested on the

Criterion Referenced English Syntax Test

(CREST): Average Number of Objectives Mastered by Grade and Test Level

(E.S.L. Title I Spanish-Speaking Students, Fall Semester)

		LEVEL I					LEVEL II					LEVEL III					TOTALS		
			Average Number of Objectives Mastered					Average Number of Objectives Mastered					Average Number of Objectives Mastered					Average Number of Objectives Mastered	
Grade	Average Months of Treatment	N	Pre	Post	Gain	Gain/ Month	N	Pre	Post	Gain	Gain/ Month	N	Pre	Post	Gain	Gain/ Month	N	Gain	Gain/ Month
9	3.3	32	8.1	13.2	5.1	1.6	14	11.2	16.6	5.4	1.6	1	14.0	14.0	0	0	47	5.1	1.5
10	3.1	18	7.9	14.3	6.4	2.0	20	10.9	16.6	5.7	1.7	1	14.0	14.0	0	0	39	5.8	1.8
11	3.0	2	7.0	13.5	6.5	2.3	3	12.7	20.0	7.3	2.4	-	-	-	-	-	5	7.0	2.3
Total	3.2	52	8.0	13.6	5.6	1.7	37	11.2	16.9	5.7	1.7	2	14.0	14.0	0	0	91	5.5	1.7

NOTE. Number of objectives for each level: Level I (25), Level II (25), Level III (15).

.Students gained an average of 1.7 objectives per month of instruction.

.With the exception of two students at Level III, all program students across all grade levels mastered at least 1.6 objectives per month of instruction. Level III students' pre-test performance was very close to the maximum score attainable on the CREST, thus limiting the students' opportunity to demonstrate growth.

TABLE 12

Performance of Students Tested on the

Criterion Referenced English Syntax Test

(CREST): Average Number of Objectives Mastered by Grade and Test Level

(E.S.L. Title I Spanish-Speaking Students, Spring Semester)

		LEVEL I					LEVEL II					LEVEL III					TOTALS		
Grade	Average Months of Treatment	N	Average Number of Objectives Mastered Pre	Post	Gain	Gain/ Month	N	Average Number of Objectives Mastered Pre	Post	Gain	Gain/ Month	N	Average Number of Objectives Mastered Pre	Post	Gain	Gain/ Month	N	Average Number of Objectives Mastered Gain	Gain/ Month
9	3.1	31	9.5	14.5	5.0	1.6	14	12.6	15.3	2.7	0.9	5	11.2	13.0	1.8	0.6	50	4.0	1.3
10	3.0	11	10.5	14.9	4.4	1.4	18	11.3	15.8	4.5	1.5	7	9.3	11.6	2.3	0.8	36	4.1	1.3
11	2.9	2	13.0	24.0	11.0	3.9	3	17.3	16.0	-1.3	-0.4	1	11.0	14.0	3.0	1.4	6	3.5	1.3
Total	3.0	44	10.0	15.0	5.0	1.7	35	12.3	15.6	3.3	1.1	13	10.2	12.3	2.1	0.8	92	4.0	1.3

NOTE. Number of objectives for each level: Level I (25), Level II (25), Level III (15).

- Program students mastered 1.3 objectives per month of instruction across all three test levels.
- Ninth-, tenth-, and eleventh-grade students each gained 1.3 objectives per month.
- Program students at Level I gained the greatest number of objectives per month.

TABLE 13

Significance of the Difference

Between the Attendance Percentage of Program Students

and the Attendance Percentage of Mainstream Students

Grade	N	Mean Percentage	Standard Deviation
9	125	89.3	12.2
10	85	86.9	15.7
11	11	86.4	15.6
Total	221	88.2	13.8

Mainstream Attendance Percentage: 75.8

Percentage Difference = 12.4 z = 4.3 p = .01

•The attendance rate for program students is significantly greater than the rate for mainstream students at the .01 level.

SUMMARY OF FINDINGS

Spanish Language Arts

Program students made significant gains in reading scores from pre- to post-test as measured by the Prueba de Lectura. These improvements were statistically significant at the .05 level, thus satisfying the program's objective.

Bilingual Mathematics

Students at all three grade levels showed statistically significant gains in mathematics as measured by the Metropolitan Achievement Test. Post-test scores were significantly greater than pre-test scores at the .05 level of significance. These results meet the criterion of success specified by the program's objective.

Content-Area Subjects

No specific program objectives were made. Nevertheless, data from several content-area subjects were provided.

Mathematics. The overall passing rate was 57 percent. In the fall semester, 56 percent of the program students passed courses in mathematics while 58 percent received passing grades in the spring.

Science. Seventy percent of the students in the fall and spring semesters passed teacher-made examinations in science courses.

Social Studies. Fifty-six percent of the program students passed courses in social studies during the fall semester. In the spring, the passing rate was 62 percent.

Native Language Arts. A total of 67 percent of the students passed teacher-made examinations in native language arts courses in the

fall. The passing rate rose to 76 percent in the spring semester.

English

Program students were pre- and post-tested during the fall and spring semesters on the CREST. Although no program objectives were specified, in the fall students mastered an average of 1.7 objectives per month of instruction. This figure was consistent across test Levels I and II. During the spring semester, students mastered an average of 1.3 objectives per month of instruction.

Attendance

The attendance rate of program students (88 percent) was significantly greater than the rate of attendance for mainstream students (76 percent).

VII. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

Supplementing the bilingual services at Brandeis High School, the state-supported Chapter 720 bilingual program served approximately 250 students selected on the basis of test scores (including placement tests, mathematics skills, scores on the Prueba de Lectura, and mathematics achievement tests) and teacher recommendations. Completing its third year of funding, the program proved quite successful with program students exhibiting statistically significant gains in both native language arts and mathematics. The successful efforts of program staff to obtain data from program students' achievement in areas other than those required by the program evaluation criteria demonstrate the genuine concern and support that staff have for this program.

RECOMMENDATIONS

1. Although no objectives were specified in regard to the number of students passing content-area courses, the percent of students passing mathematics courses (57 percent), for example, appears inconsistently low, given the students' fine performance on the Metropolitan Achievement Test. The program might consider establishing a peer tutoring program with eleventh-grade students working individually with ninth graders (the group with the lowest passing rates in this subject).

2. Due to the success of the Chapter 720 bilingual program, the school is urged to make every effort to support the continuation of paraprofessionals in the mathematics and Spanish native language arts classes.